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'This Isn't My Job.' Or Is It?

A wise installer knows that engineers and site evaluators can make mistakes. An understanding of site evaluation procedures can help head off trouble.

By Jim Anderson, Ph.D., and David Gustafson, P.E..

When we talk to installers at our workshops about what should make up a good site evaluation, a number of them always ask, in effect, "Why do I have to worry about this? I get a design and a plan from the engineer or site evaluator, and all I need to do is be able to read the plan and put in the system."

Tim Haig of Watab Enterprises evaluates the soil at the site using a 4-inch bucket auger. (Photos courtesy of Tim Haig and Watab Enterprises)

Our consistent response is: Sometimes engineers and site evaluators are wrong or have missed something important. When you as the installer are there and starting to excavate, you are the last person who can recognize potential problems and correct them. You are also the first person the homeowner calls when things don't work out.

Therefore, if you are not doing the site evaluation work yourself, you still need to know what the steps are, so that you can recognize or catch potential problems.

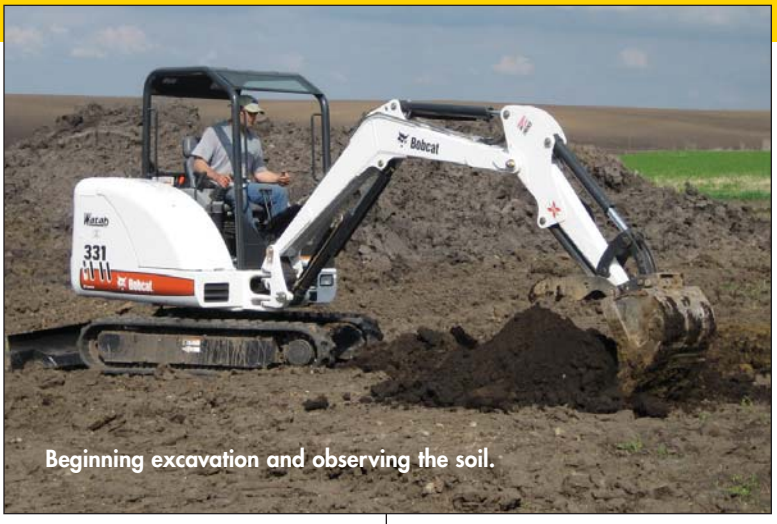
What to evaluate

The purpose of the site evaluation is to understand the soil, hydrology and landscape of the site, to predict wastewater flow through the soil and into subsurface materials, and to provide information that can be used to design an onsite system to match the conditions.

Thus, every onsite wastewater system is a custom design that maximizes the capacity of the site to treat and disperse wastewater. The system's performance depends on:

- The soil's ability to accept and treat the effluent
- How water moves across and away from the site
- The level of pretreatment.

This is part of the balancing act that we talk about all the time. We want the soil to accept the amount of effluent the system generates, and at the same time make sure it is properly treated before it ends up somewhere else in the environment.



Beginning excavation and observing the soil.

Systematic approaches to site evaluation have been written up in many publications and manuals. Our purpose is not to duplicate them but to provide a general outline of the steps involved. In future articles, we will look more closely at certain aspects.

There are two major parts (or phases) to a site evaluation: preliminary evaluation, and field work. If the site evaluator does a good job of collecting information in the preliminary phase, that makes the site work easier and faster.

Preliminary phase

In the preliminary phase, you must know and understand the rules and requirements. This means both state rules and the local rules administered by the county or municipality. As an installer, you are responsible for knowing the rules you work under.

If you install a system too close to a water body because that is the way it was drawn on the design, you are still responsible, and you will be called upon to fix it. So you should check any installation for soil characteristics or other conditions you see that you feel do not meet the requirements.

The preliminary evaluation also involves determining or understanding how to estimate the average daily sewage flow for the residence. You can then combine that information with knowledge of the soil requirements and check to see if the system is being sized properly for the amount of effluent the soil is to receive. You can do this through a simple estimate of

daily sewage flow based on the number of bedrooms, which you can get from the homeowner.

You can obtain soils information from county soil surveys or from your own analysis on site. This will help you see whether the designed long-term acceptance rate is in line with the general soil characteristics.

You also need a working knowledge of the various onsite system options available. Although the exact details of the systems may not be critical, it is important to know the soil and site requirements for each type of system.

With this information, you can determine if the system design does or does not fit the site requirements. If it does, then you can confidently proceed with the installation.

Field evaluation

Once you are in the field, it is important to look around and evaluate the site for how and where water is likely to move. This includes both how water introduced to the system will move away and how other unwanted or extra water could be introduced to the site.

Is the system in a drainageway? Is it in an area that will receive water from the roof? If so, is dealing with this extra water a part of the plan? If not, you should discuss with the designer and the homeowner how to deal with it.

While you should not have to duplicate site evaluation work done by others, you need to have knowledge of the soil characteristics. When excavating for the septic tank or other pretreatment devices, you get an opportunity for a firsthand look at the soil.

You can evaluate soil texture to determine if the proper long-term acceptance rate (LTAR) was used to design the system. You should evaluate soil color to see if there is evidence of a high water table, and determine if the soil treatment system has the proper separation distance from it. You should note any other limiting soil layer, such as bedrock or dense soil layers, and compare that with the design parameters. Here is where knowledge of the rules and regulations comes into play, again with an understanding of the required separation distances.

You should also consider setbacks to water bodies or receiving environments. Also check setbacks from water-supply wells. In the end, what you observe may call for an advanced treatment system to protect the public interest adequately.

The proposed site for an onsite treatment system prior to excavation.

If you do all these things in the process of installation, or if you identify problems and solve them before the system is in the ground, everyone benefits. So whether you do the site evaluation and design yourself or you install from a plan, paying attention to the site evaluation will pay dividends. ■